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(56) Documents Cited

WO 97/27947 A1 WO 94/13258 A1 US 5339990 A

US 5224627 A

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(54) Dispenser with two pumps

(57) A dispenser comprises two compartments 12,14 each containing a separate product to be dispensed and, associated with each compartment, a pump 30 or 32, the pumps being operated by a common closure 28 having channels 70,72 for delivery of the products. The channels 70,72 are connected by a friction fit to respective pump outlets 34,36 and lead upwardly and horizontally, the horizontal portions extending parallel to a line perpendicular to and intersecting the pump axes. The pumps are provided in the form of cartridges having peripheral rims 38,40 snap fitted beneath beads 42 around openings to the compartments.

Fig.3.

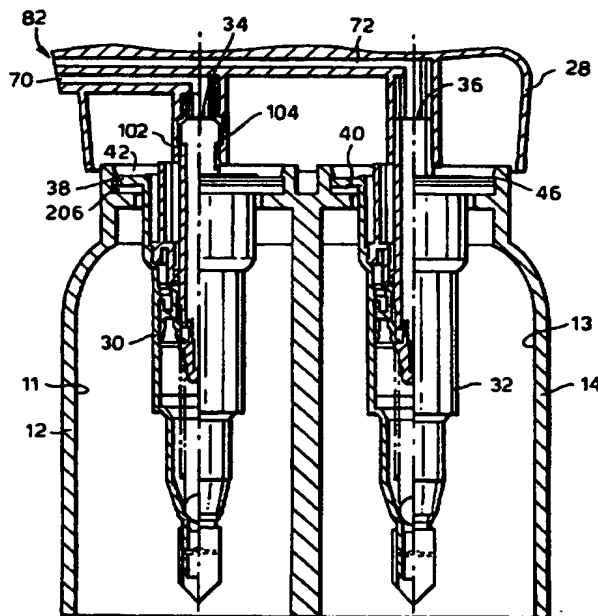


Fig.1.

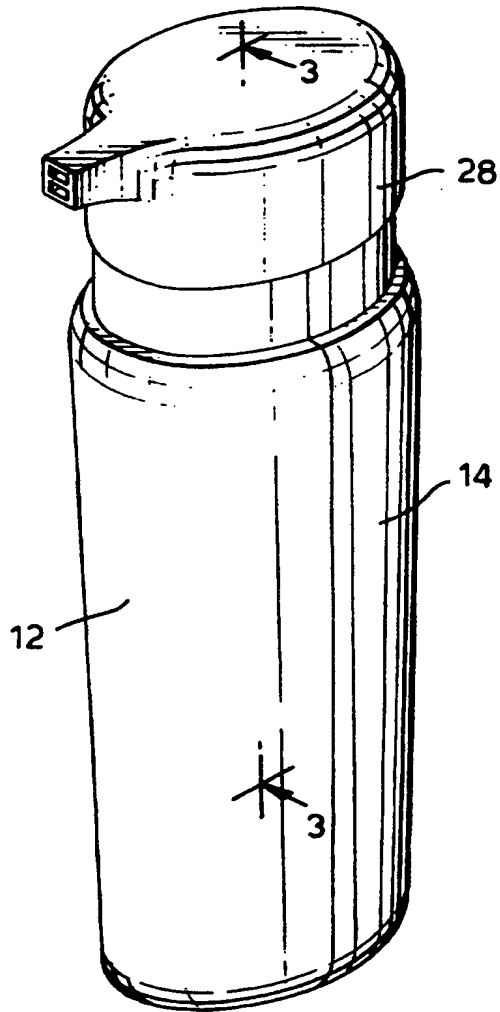
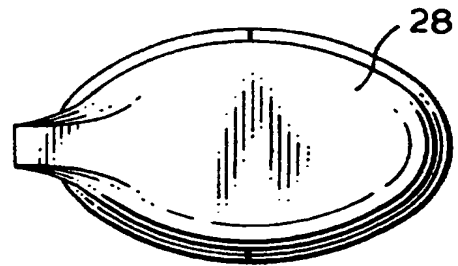
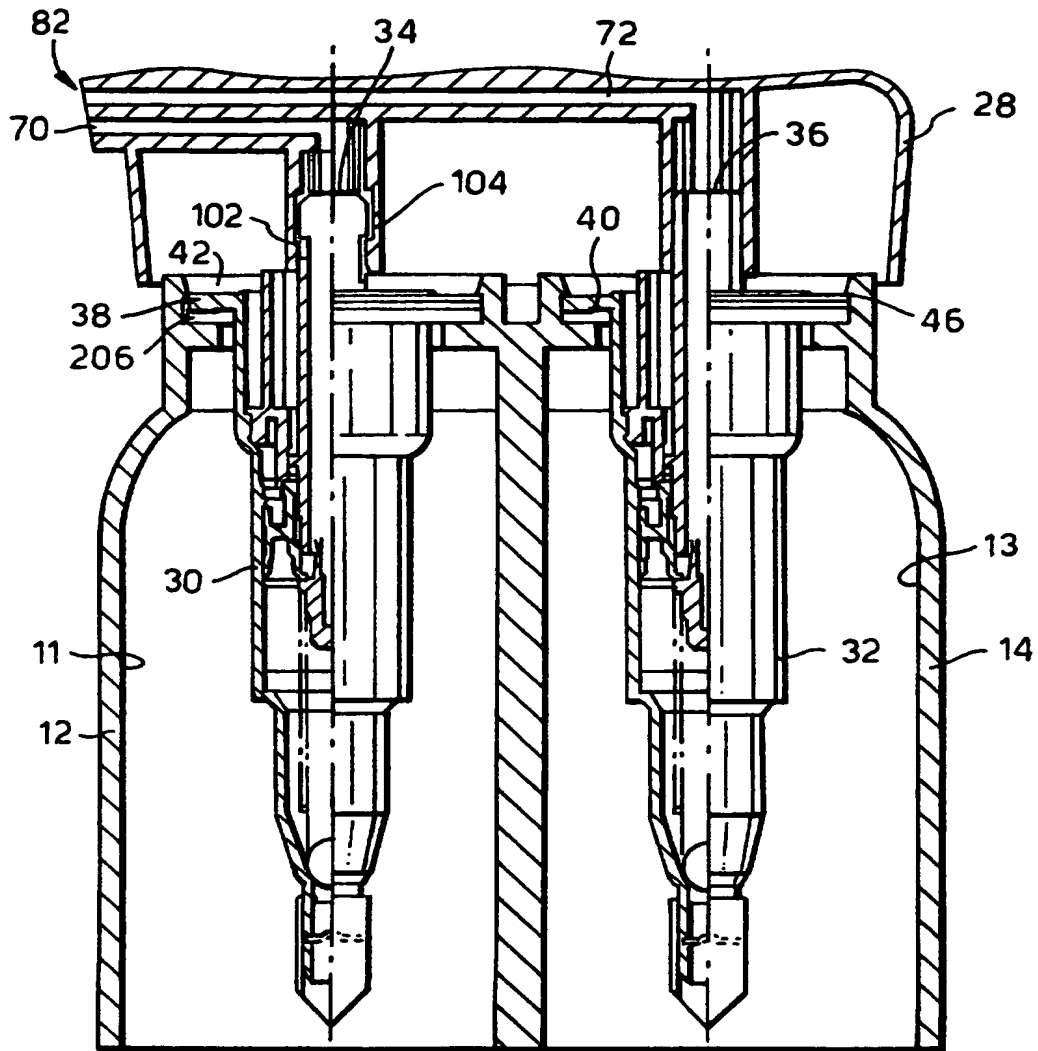


Fig.2.



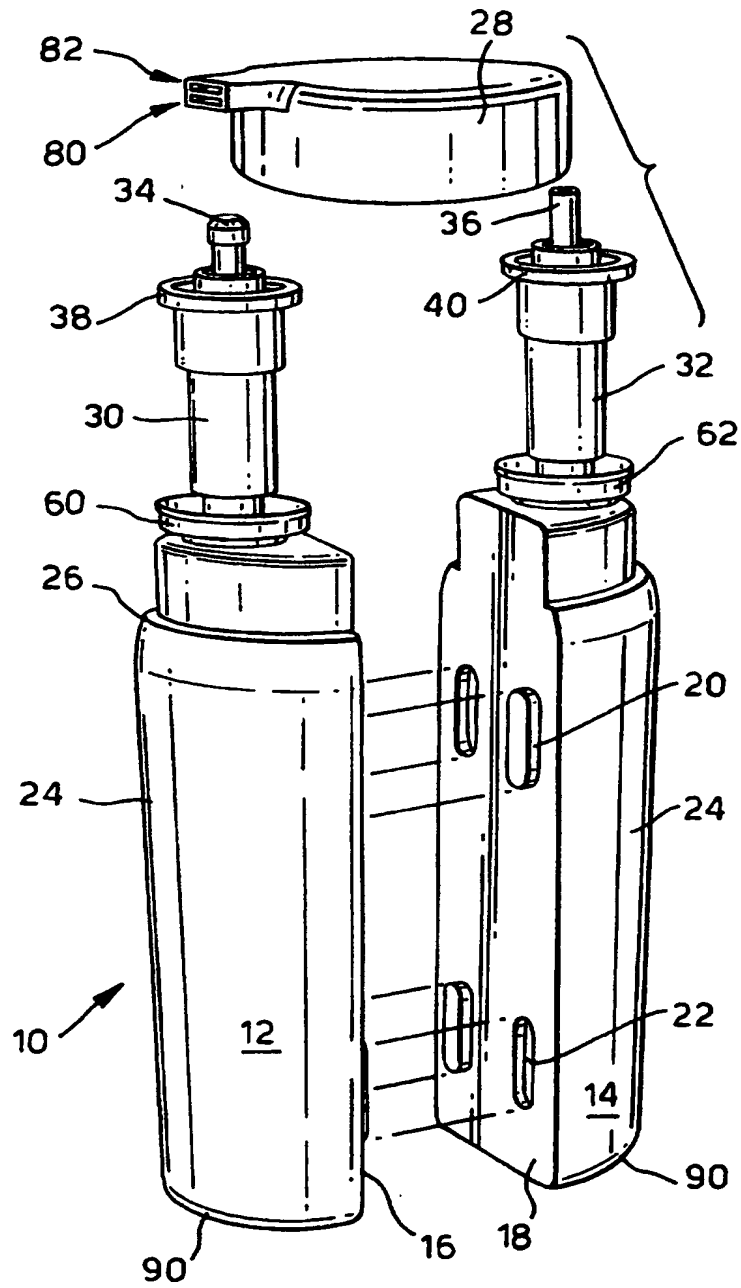
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Fig.3.



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Fig.4.



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Fig.5.

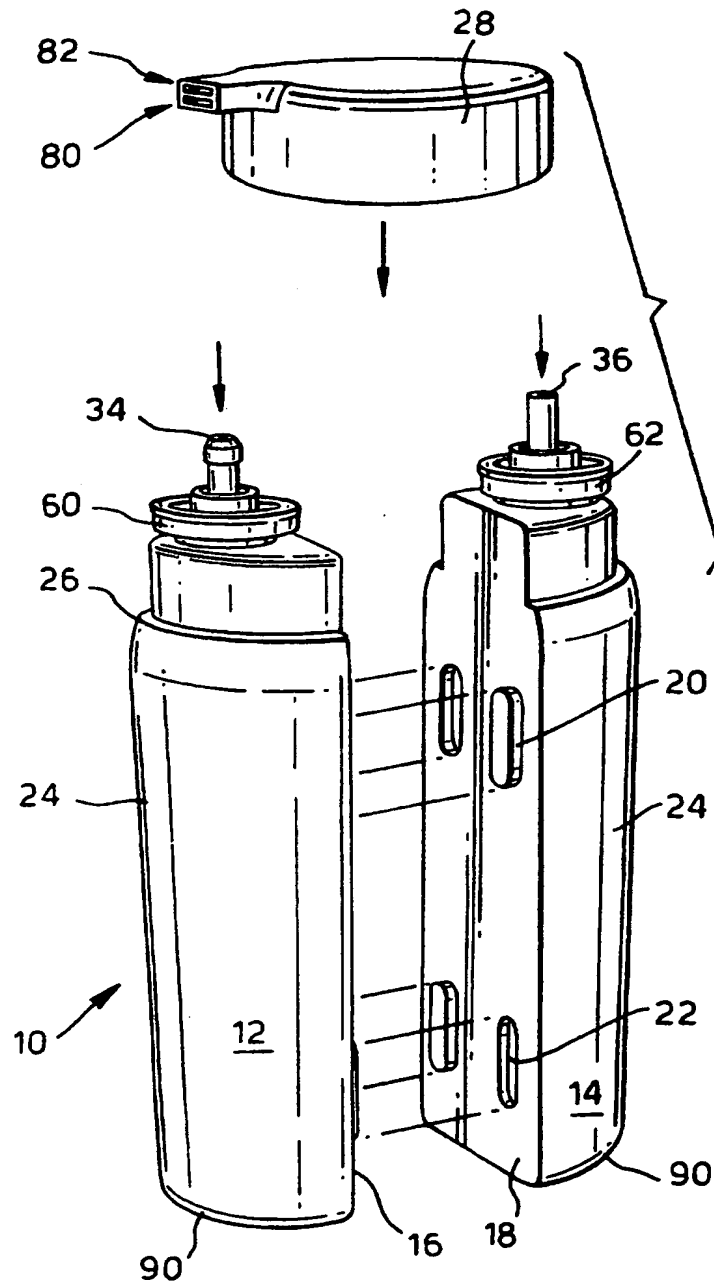


Fig.6.

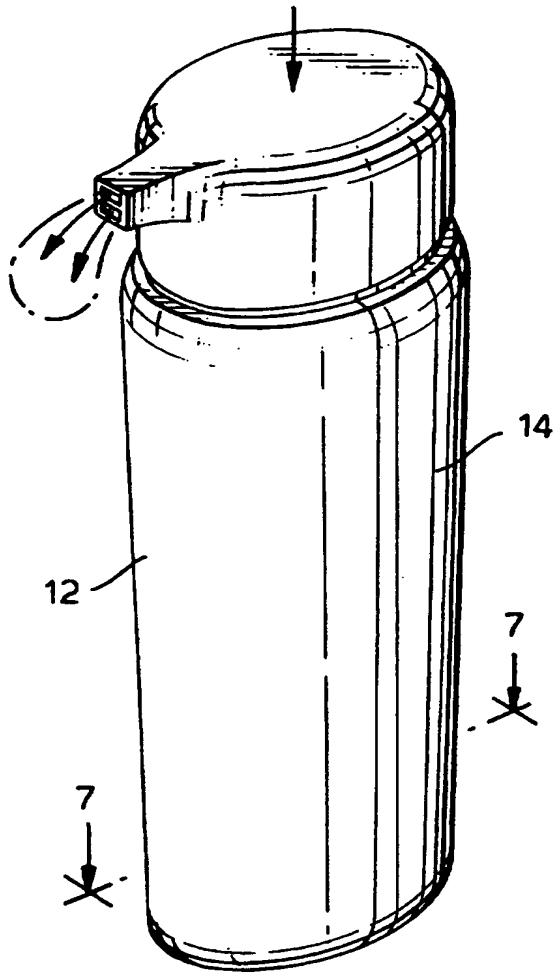
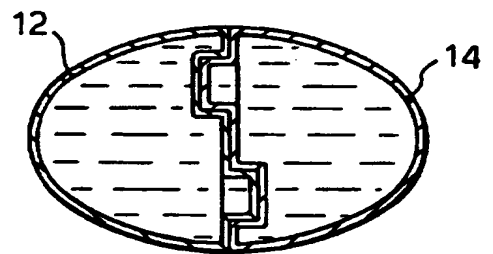
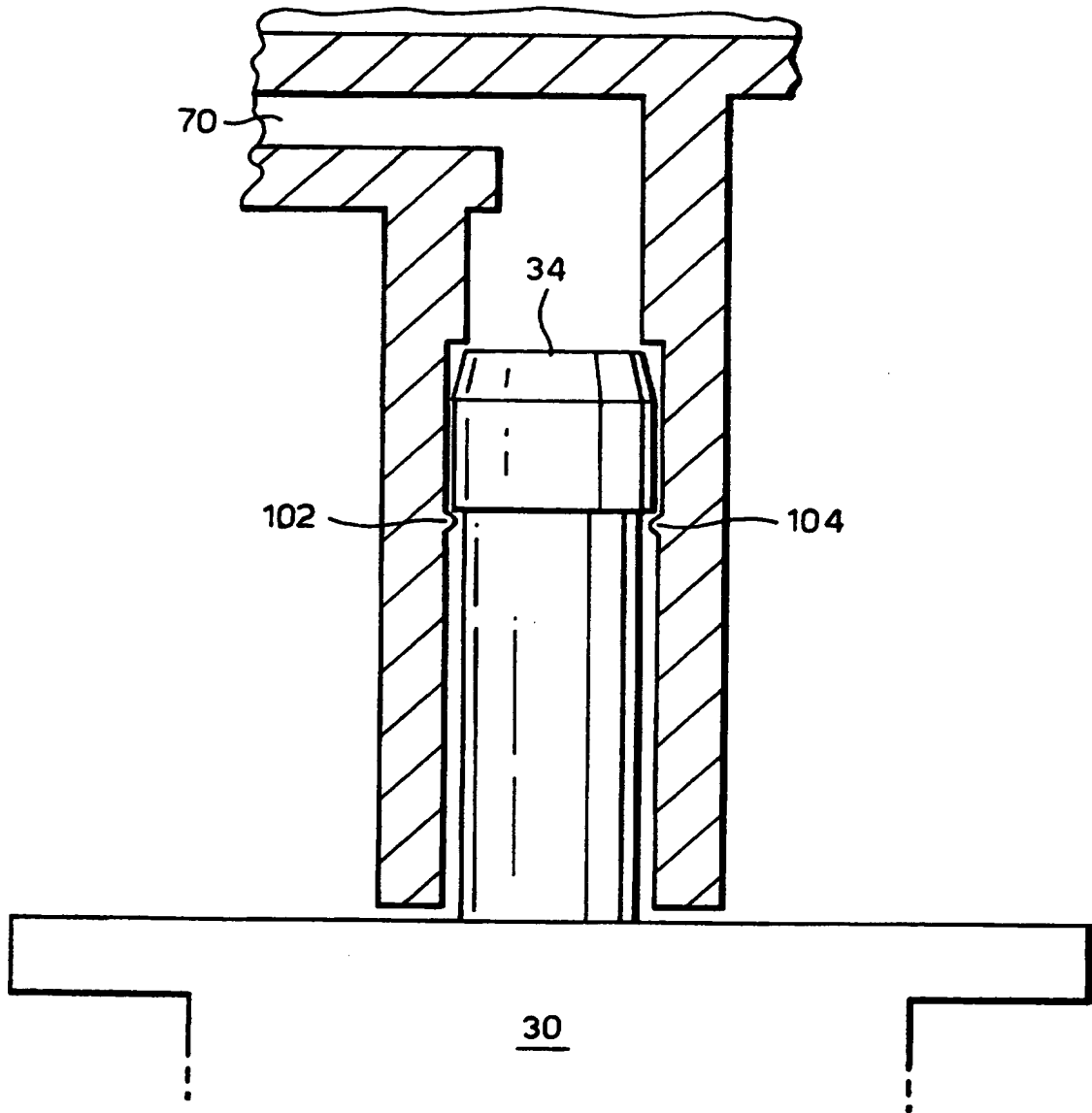


Fig.7.



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Fig.8.



DUAL COMPARTMENT PACKAGE
AND CLOSURES THEREFOR

Introduction

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The invention relates to a dual compartment package and closures therefore.

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There is sometimes a need in the packaging of consumer products to keep separated two of the components until such time as the product is actually to be used. An example is the Mentadent® brand of toothpaste. In that product, a peroxide-containing formulation and a bicarbonate-containing formulation are kept separate prior to dispensing to prevent premature interaction of the components.

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Another example where it may be desirable to keep components separate in a consumer product would be a cleaning composition where it is necessary to keep a bleaching agent separate from another component such as an enzyme, to avoid undesirable interaction. Other examples include popular skin products having both surfactants for cleansing and a separate moisturizing ingredient.

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Particularly if the products are relatively viscous it may be desirable to provide pumps to assist the consumer in dispensing. Also, it is sometimes desirable that both products be dispensed in equal quantities at similar flow rates.

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Various pumps and dispensers are disclosed in the literature.

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Stokes et al., U.S. Patent No. 5,137,178 discloses a dispenser wherein product components such as facial lotion and makeup can be kept in separate chambers prior to dispensing.

Maerte, U.S. Patent No. 4,871,092 discloses an atomizing or metering pump wherein it is possible to adjust the metering or atomizing quantity. The metering or atomizing quantity can be adjusted, eg. by twisting the operating pusher with respect to the pump casing. In one embodiment a projection cooperates with a recess extending over part of the circumference, two ends of the recess limiting the movement of the projection within the recess. In one embodiment, a projection 19A can be set so that the operating pusher can be pressed down to rest on one of a number of corresponding steps so that the length of the stroke can be set.

Marraffino, U.S. Patent No. 3,291,346 discloses a blending device for blending hot water with creme to convert the creme into a wet or moist hot, foamy lather which issues from a shaving creme dispenser. A locking pin is provided to lock the cylinder against movement relative to the sleeve when the device is not in use.

Golden, U.S. Patent No. 3,459,332 is directed to a pneumatic control system for dispensing metered quantities of liquid from one or more different liquid supply chambers in an automatic manner so that the dispensed liquid will be in proper quantities for providing a predetermined mixture of liquids, each dispensing operation being effected by pneumatically controlled actuator means. At column 2, lines 6-12, it is stated that the various features of the invention are described and illustrated as being particularly adaptable to provide automatic control for two or more liquid dispensing units, but that it is to be understood that the various features of the invention can be utilized singly or in any combination thereof to provide dispensing structure for only a single liquid as desired. In Fig. 5, a stop means

is adjusted so that each unit will dispense a predetermined volumetric quantity of its respective supply liquid during each dispensing cycle.

5 Gueret, U.S. Patent No. 4,773,562 discloses a dispenser head for mixing separate pasty substances wherein two ducts open into a mixing chamber which in turn opens out to the outside of the container.

10 Pocknell, U.S. Patent No. 4,791,149 discloses a package having two separate compartments where the ingredients present in each such compartment do not react with each other, there being a propellant located between a membrane and the container whereby the membrane may be caused by the
15 propellant gas to expel the component when required.

Skorka, U.S. Patent No. 4,826,048 discloses a dispenser having two reservoirs for separate media components. Each reservoir has a separate discharge pump, both discharge pumps
20 being simultaneously operable by means of a common handle. The pumps are preferably thrust piston pumps. It is said that the components can be brought together in a precisely dosed quantity ratio in accordance with German patent application DE 32 25 910.7

25 Marand, U.S. Patent No. 3,704,812 is directed to a dispenser including several fluid components in isolated sack chambers.

Cataneo et al., U.S. Patent No. 5,385,270 is directed to an
30 apparatus for dispensing two flowable substances in a user selectable ratio. The selector member is selectively rotatable with respect to the container between a series of predetermined positions where the selector member opening is either in full registry, partial registry or not in registry
35 with the open ends of each of the chambers, such as upon

compression of the outer container wall. A predetermined measure of flowable substance is dispensed from the dispensing end of the container with a ratio of the flowable substances from the two chambers being selectively variable.

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Cordery et al. EP 468 703 discloses a shampoo system comprising a first pack including a surfactant and a cationic conditioning polymer and a second pack containing a benefit agent. The first and second packs are adapted to be mixed together before use. The benefit agent is said preferably to be chosen from among sunscreens, certain silicones, perfumes, hair growth agents, hair moisturizers, anti-dandruff agents, bodying agents, shine enhancers and setting agents.

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Statements of the Invention

In a first aspect, the present invention is directed to a dual chamber dispenser. The dispenser includes at least two chambers, pumps for each chamber and a combined closure and pump actuator. Fluid emerging from each pump outlet is received within a respective channel for conveying the product outside of the dispenser. The channels extend to one or more product exit apertures in the closure. The channels extend in a direction substantially parallel to an axis formed by a line drawn between the two pumps.

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The invention is also directed to the common closure. The common closure includes a first channel having a vertical section leading from a channel inlet and a horizontal section, and a second channel having a vertical section leading from a channel inlet and a horizontal section. The first and second channel horizontal sections lead to one or more product exit openings in the closure. The channels extend in a direction overlying or parallel to an axis drawn from the first channel inlet to the second channel inlet.

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The dispenser of the invention is designed preferably to deliver equal amounts of two liquid products. Preferably the two chambers are connected together either mechanically or with an adhesive. The dispenser is designed to be hand held and is particularly useful in shower products where shelf space is limited.

In accordance with another aspect of the invention, the pump is provided in the form of a cartridge which is snap fit into the dispensing chamber. The pump includes a peripheral rim which is held within the chamber by a bead disposed on the inside surface of the chamber opening. Consequently, such pumps can be readily installed in appropriate chambers.

For a more complete understanding of the above and other features and advantages of the invention, reference should be made to the following detailed description of the preferred embodiments and to the accompanying drawings.

Brief Description of the Drawings

Fig. 1 is a perspective view of a dual dispenser according to the invention wherein the closure has been inserted onto the dispenser.

Fig. 2 is a top plan view of the dispenser of the invention. Fig. 3 is a partial cross sectional view of a closure and dual dispenser according to the invention.

Fig. 4 shows an exploded view of the dispenser according to the invention with the pump cartridges not fully inserted in the chambers.

Fig. 5 is a view similar to Fig. 4 except that the cartridges have been fully inserted.

Fig. 6 is a view similar to Fig. 1 showing the cap depressed and product exiting.

Fig. 7 is a cross section along the lines 7-7 of Fig. 6.

Fig. 8 is a cross section similar to Fig. 3 showing the area of one of the pump outlets in greater detail.

Detailed Description of the Invention

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Dispenser 10 comprises two compartments 12 and 14 which house the chambers containing product to be dispensed. The compartments are affixed to each other mechanically or by chemical adhesive at surfaces 16 and 18, which are preferably flat or of some other configuration lending itself to affixing the chambers together. If so desired, surfaces 16 and 18 may include projections 20 and openings 22 for receiving projections, to assist the chambers in mating.

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Outer walls 24 of compartments 12, 14 are recessed at 26 to accommodate common closure 28 at the top of the dispenser. The dispenser stands on generally flat bottom 90. Pump cartridges 30, 32 are snap fit within the chambers 11, 13 of compartments 12, 14 as seen in Figs. 2 and 3. Cartridges 30, 32 include dispensing outlets 34, 36 and peripheral rims 38, 40 beneath the dispensing outlets. As best seen in Fig. 2, peripheral rims 38, 40 are disposed and snap fit beneath beads 42, 46 in compartments 12, 14. Apart from the presence of the peripheral rims and the presence of the pumps in the form of cartridges, pumps 30, 32 are conventional and are available from suppliers such as SAR USA, Inc., 401 Hackensack Avenue, 5th Floor, Hackensack, New Jersey 07601. While pump cartridges having peripheral rims are known, the manner of holding the cartridges within the packages has heretofore been different.

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The pumps may be made by injections molding the components (other than the stainless steel springs) and assembling the components.

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Cartridges 30, 32 are inserted within chambers 11, 13. Their insertion is guided in part by annular walls 60, 62 extending upwardly from the top of recessed portions of wall 24.

5 Outlets 34, 36 lead to channels 70, 72 in closure 28. Each of the channels includes an upwardly extending section and a horizontally extending section. Outlets 34, 36 are friction fit within the upwardly extending sections of channels 70, 72 and may be retained by beads 102, 104 in the channels as
10 illustrated for pump outlet 343 in Figs. 3 and 8. Foam or rubber gasket 206 is disposed beneath rim 38. The horizontally extending sections of channels 70, 72 are disposed one above the other. Consistent with the ergonomic nature of the dispenser, particularly keeping in mind its
15 intended one-handed use in the shower, the channels extend generally parallel to an axis drawn between the two pumps. Product emerges from channel 70 at product exit aperture 80 and from channel 72 at product exit aperture 82.

20 The simplicity of the design of closure 28 is advantageous in that it facilitates injection molding of the part. During molding, the straight sections of each channel are formed by pins. These (straight) pins can be readily withdrawn from the mold.

25 Pumping is effected by applying manual pressure to the top of closure 28. The closure transmits the force to the tops of outlets 34, 36 and thus to the rest of the pumping mechanism. As will be appreciated, the pump of the invention is capable
30 of delivering equal amounts of two liquid products through a single actuator head, the closure. The dispenser is ergonomically designed so that it can be hand held. When grasped by the consumer in one hand, one or more of the consumers' fingers can readily be placed at the top of the
35 closure pointed toward the product exit apertures.

Although the invention has been disclosed as having separate channels and separate product exit apertures, it will be appreciated that the product may be mixed either in channels or may be passed through a single aperture, if this is
5 desired.

The oval shape of the dispenser likewise assists the user in grasping it in one hand.

10 The friction fit of the pump into the bottle neck facilitates manufacture of the dispenser. This permits the pumps to be inserted in different shaped chambers, if so desired.

The chambers and the pumps are preferably identical. This
15 helps conserve manufacturing resource.

The dispenser, including the pump cartridges, is preferably made of a polyolefin, such as polypropylene. The
20 compartments of the dispenser may be extrusion blow molded.

It should be understood of course that the specific forms of the invention herein illustrated and described or intended to be representative only, as certain may be made therein without departing from the clear teaching of the disclosure.
25 Accordingly reference should be made to the appended claims in determining the full scope.

CLAIMS

1. A dispenser comprising

5 a first compartment having a chamber, a second having a chamber, a first pump operatively associated with said first chamber, said pump having a fluid inlet within said first chamber and a fluid outlet, a second pump operatively associated with said second chamber, said
10 second pump having a fluid inlet within said second chamber and a fluid outlet, said first and second pumps defining an axis extending from said first pump to said second pump, a common closure in fluid communication with said first and second pump fluid outlets, said
15 closure including a first channel in fluid communication with said first pump fluid outlet, and a second channel in fluid communication with said second pump fluid outlet, said first and second channels extending in a direction overlying or parallel to said axis to a
20 product exit opening outside of said dispenser.

2. The dispenser according to claim wherein said first and second channels each extend to a separate product exit opening.

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3. The dispenser according to claims 1 or 2 wherein said dispenser includes a bottom having a surface suitable for standing the dispenser thereon and a top, said closure being disposed at said top, said first and
30 second channels having horizontally extending sections disposed one above the other when said dispenser rests on said bottom.

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4. A common closure for two product streams, comprising a first channel having a vertical section leading from a
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channel inlet and a horizontal section, and a second channel having a vertical section leading from a channel inlet and a horizontal section, said first and second channel horizontal sections leading to one or more product exit openings in said closure, said first and second channels extending in a direction overlying or parallel to an axis drawn from said first channel inlet to said second channel inlet.

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- 10 5. The closure according to claim 4 wherein said first and second channels each extend to a separate product exit opening.



The Patent Office

-11-

Application No: GB 9718242.2
Claims searched: 1-5

Examiner: Brian Denton
Date of search: 16 December 1997

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): F1W WCV)

Int Cl (Ed.6): B05B 11/00

Other:

Documents considered to be relevant:

| Category | Identity of document and relevant passage | Relevant to claims |
|----------|--|--------------------|
| X P | WO 97/27947 A1 (AIRSPRAY INTERNATIONAL) published 7 August 1997, see particularly Fig. 1 | 1-5 |
| X | WO 94/13258 A1 (SCHERING-PLOUGH) note Figs. 4 and 5 | 1-5 |
| X | US 5339990 (WILDER) note Fig. 5 | 1-5 |
| X | US 5224627 (WEAG) note in particular Figs. 1, 3 and 4 | 1-5 |

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|---|---|---|--|
| X | Document indicating lack of novelty or inventive step | A | Document indicating technological background and/or state of the art. |
| Y | Document indicating lack of inventive step if combined with one or more other documents of same category. | P | Document published on or after the declared priority date but before the filing date of this invention. |
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